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Notice of Allowability

Application No.

10/711,493

Examiner

Russell Frejd

Applicant(s)

KAPOOR ET AL

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment received 24 August 2007.
2. ☒ The allowed claim(s) is/are 1-20,41-49 and 59-64.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
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RUSSELL FREJD
RUSSELL FREJD
PRIMARY EXAMINER

In re Application of: Kapoor et al.

Allowance of Application # 10/711,493

1. The following communication is in response to applicant's amendment received 24-August-2007. Claims 1-20, 41-49, and 59-64 are pending in the application. Claims 21-40, 50-58, and 65-75 are canceled.

Examiner's Amendment

2. An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the Issue Fee. Authorization for this Examiner's Amendment was given by Kelly Hyndman (Reg. No. 39, 234) on 24-September-2007.

2.1 In the Claims:

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|----------|---------|--|
| claim 1 | line 5 | Change "for each of the power" to --for each power--. |
| | line 6 | Change "the power" to --the at least one power--. |
| | line 9 | Change "the power domain, when the power" to --the at least one power domain, when the at least one power--. |
| | line 11 | Change "logic in the" to --logic module in the--. |
| claim 8 | line 4 | Change "the power" to --the at least one power--. |
| | line 6 | Change "isolation module" to --isolation logic module--. |
| claim 11 | line 2 | Change "the power" to --the at least one power--. |
| claim 16 | line 1 | Change "the isolation logic" to --the generated isolation logic--. |

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- line 6 Change "the power" to --the at least one power--.
- line 7 Change "the power" to --the at least one power--.
- claim 17 line 1 Change "the isolation logic" to --the generated isolation logic module--.
- claim 19 line 1 Change "the isolation logic" to --the generated isolation logic--.
- line 2 Change "the isolation logic" to --the generated isolation logic--.
- claim 41 line 5 Change "for each of the power" to --for each power--.
- line 10 Change "the power" to --the at least one power--.
- line 11 Change "the power" to --the at least one power--.
- claim 46 line 1 Change "isolation logic is" to --isolation logic module is--.
- claim 48 line 2 Change "of the isolation logic module placed in the design." to --of the
inserting of the instance of the isolation logic module.--.
- claim 59 line 6 Change "the power" to --the at least one power--.
- line 8 Change "the isolation module" to --the isolation logic modules--.
- claim 60 line 2 Change "the voltage constraints" to --the plurality of voltage constraints--.
- claim 63 line 2 Change "the power" to --the at least one power--.
- claim 64 line 1 Change "the isolation cell" to --the at least one isolation cell--.

Reasons for Allowance

- 3.** The following is an Examiner's Statement of Reasons for the indication of allowable subject matter.

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3.1 The improvement of the present invention comprises, in various embodiments, a method for generating and verifying isolation logic modules in a design of an integrated circuit. In particular, the method defines at least one power domain in the design, checks the design for the existence and correctness of an isolation logic module which isolates the power domain, generates an isolation logic module for isolating the at least one power domain if the at least one power domain is incorrectly isolated, and inserts the generated isolation logic module in the design.

Furthermore, the embodiment of claim 41 defines inserting an instance of the isolation logic module in a wakeup domain, renaming output names of the at least one power domain, and assigning the original output names of the at least one power domain to outputs of the isolation logic module.

Also, the embodiment of claim 59 defines the conditions for generating an error report or a success report in response to various checking and comparison results in regard to the at least one power domain, the isolation logic modules, and the wakeup/shutdown signal.

3.2 The instant application is directed to a non-obvious improvement over the invention described in the information described in the article authored by Munch et al., entitled *Automating RT-Level Operand Isolation to Minimize Power Consumption in Datapaths*, which teaches how redundant design modules in a circuit design can be identified in order to develop a model to estimate the power savings that can be generated by isolation of selected modules at the RT level.

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3.3 The art of record, either individually or in combination, fails to teach, suggest, or render obvious the specific arrangement of elements in the same combination as now required by the amended claims. In view of the foregoing, the claims of the present application are found to be patentable over the prior art.

Response Guidelines

4. Any comments considered necessary by applicant **MUST** be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should clearly be labeled "Comments on Statement of Reasons for Allowance".

4.1 Any response to the Examiner in regard to this allowance should be

directed to: Russell Frejd, telephone number (571) 272-3779, Monday-Friday from 0530 to 1400 ET, **or** the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279. Inquires of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist (571) 272-2100.

mailed to: Commissioner of Patents and Trademarks
P.O. Box 1450, Alexandria, VA 22313-1450

or faxed to: (571) 273-8300

Hand-delivered responses should be brought to the Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA, 22314.

Date: 29-September-2007

/Russell Frejd/
Primary Examiner AU 2128

RUSSELL FREJD
PRIMARY EXAMINER